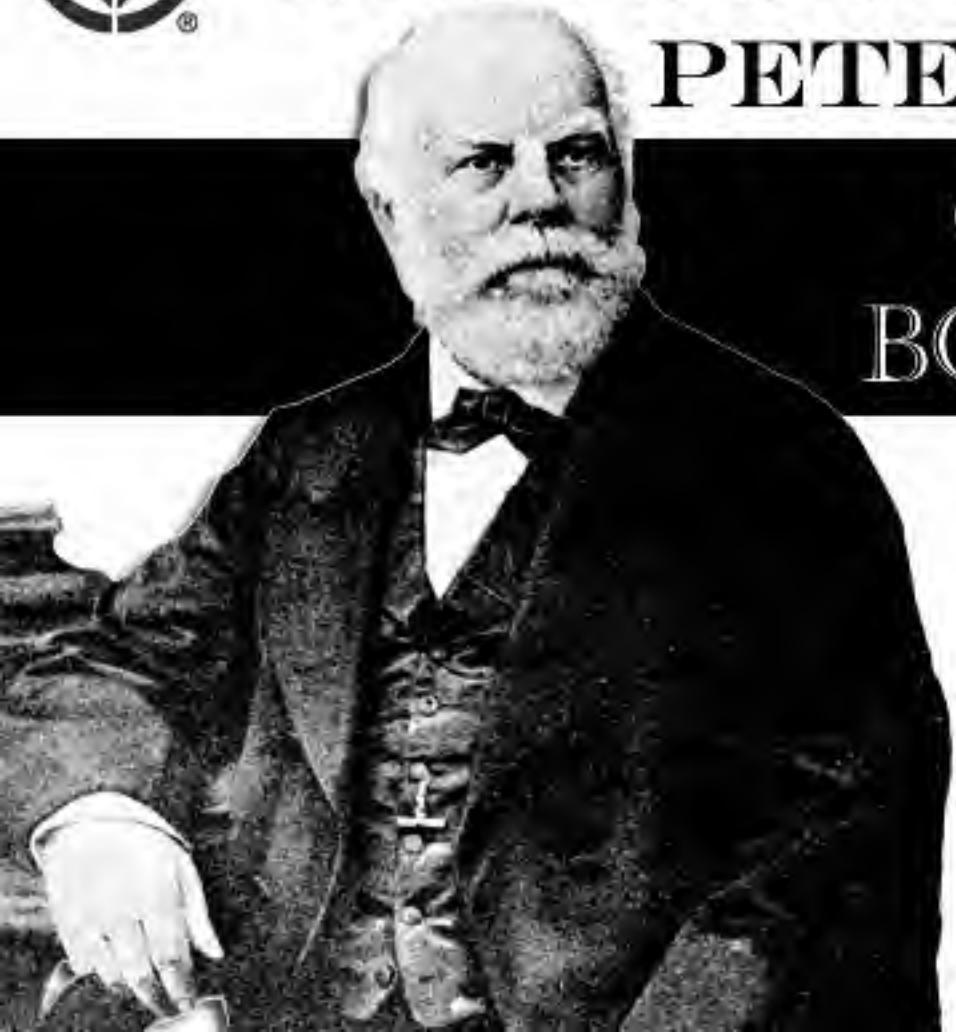




MISSOURI BOTANICAL GARDEN

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GEORGE ENGELMANN BOTANICAL NOTEBOOKS

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your journal. Knowing full well that the value of property is first to be established before there can be any general interest in its ownership, I do not ask to occupy the pages of your journal with the unprofitable discussion of mere *priority*, but desire to present from the *records*, the data upon which my strictures in that lecture were based, and are still maintained. As these records are not generally accessible to your readers, I believe this will not be uninteresting.

Very respectfully,

Your obedient servant,

J. H. WATTERS,

Prof. Physiol., Pathol., and Clin. Med. in the Missouri Med. College.

In the year 1849 I commenced attendance upon medical lectures in the University of Pennsylvania, being already somewhat imbued with the principles of mathematics and natural philosophy by previous studies. With these principles, which I considered immutable, I could not reconcile much that was then being taught me. For instance, I could not see clearly how matter could be inert and at the same time *endowed* with active properties. At that time the only works of Dr. CARPENTER to which I had access were his "Human Physiology" (our text book) and his article "Life," in the Cyclopaedia of Anatomy and Physiology. In this last the doctrine which he advocated was, *that matter capable of assimilation is endowed with dormant vital properties which are developed*

"... by the action of the vital force."

"... we have not only inert matter with active

... urth



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Editorial.

and *moisture* tend to cause decay in organic matter—to cause organic compounds to resolve back into the inorganic! How is this, that these same conditions of destruction should be the conditions of life, development, and growth, when they act upon the seed, if there had not been in the seed all the time some "force" to resist their natural tendencies, which they "stimulate" into "activity"? Air, heat, and moisture can not have the power of discretion or will. Then they must act upon the seed as upon other organic matter, and the difference of behavior must depend upon somewhat connected with the seed. But this *somewhat* can not be a "dormant" force, or "dormant vitality," for that is absurd and contrary to what is received as first principles in natural philosophy. But hold! do not the motions of the clock depend upon the conditions of gravity acting as elsewhere? And does not the clock move only as the weights descend? Then why may it not be with the seed as with the clock, that that which determines its peculiar behavior is the form, the adjustment, the organization? The somewhat peculiar in the seed then would be, not a "dormant vitality," but a peculiar *form*. If the weights (gravity—the downward tendency) be taken away, the clock will not move; so, why may not life and decay be reciprocal?

This reflection occurred first in the form of a query; but, like a flash, it assumed the appearance of a great truth. It was to me as real (for I believed it) that I had struck the key note to which the harmony of all nature is accommodated; the fundamental



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Yucca whipplei

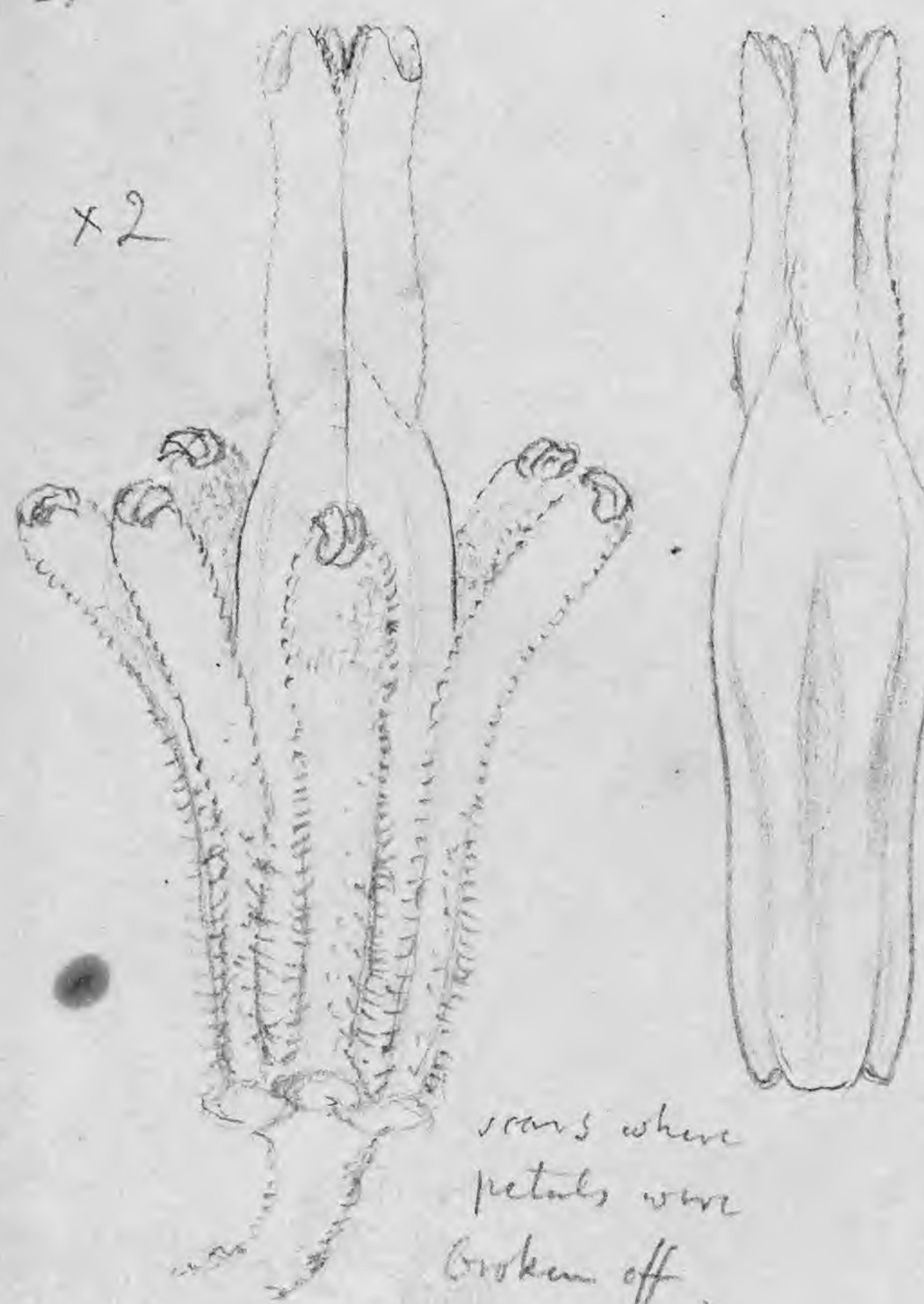
cult in my garden, St Louis

June 22 1871

(just east of bay window)

I

x2

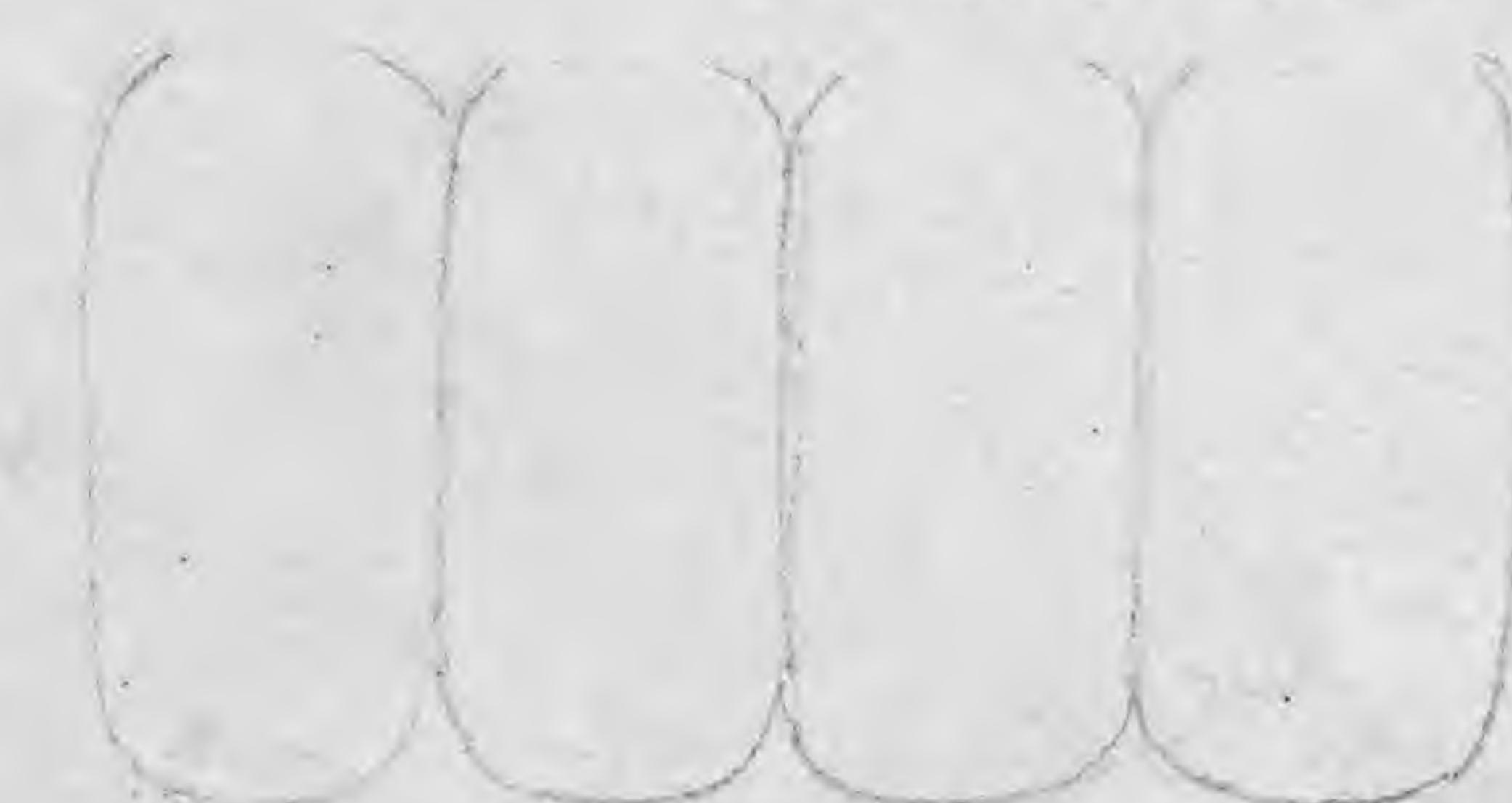


anther
from a young bud

x10

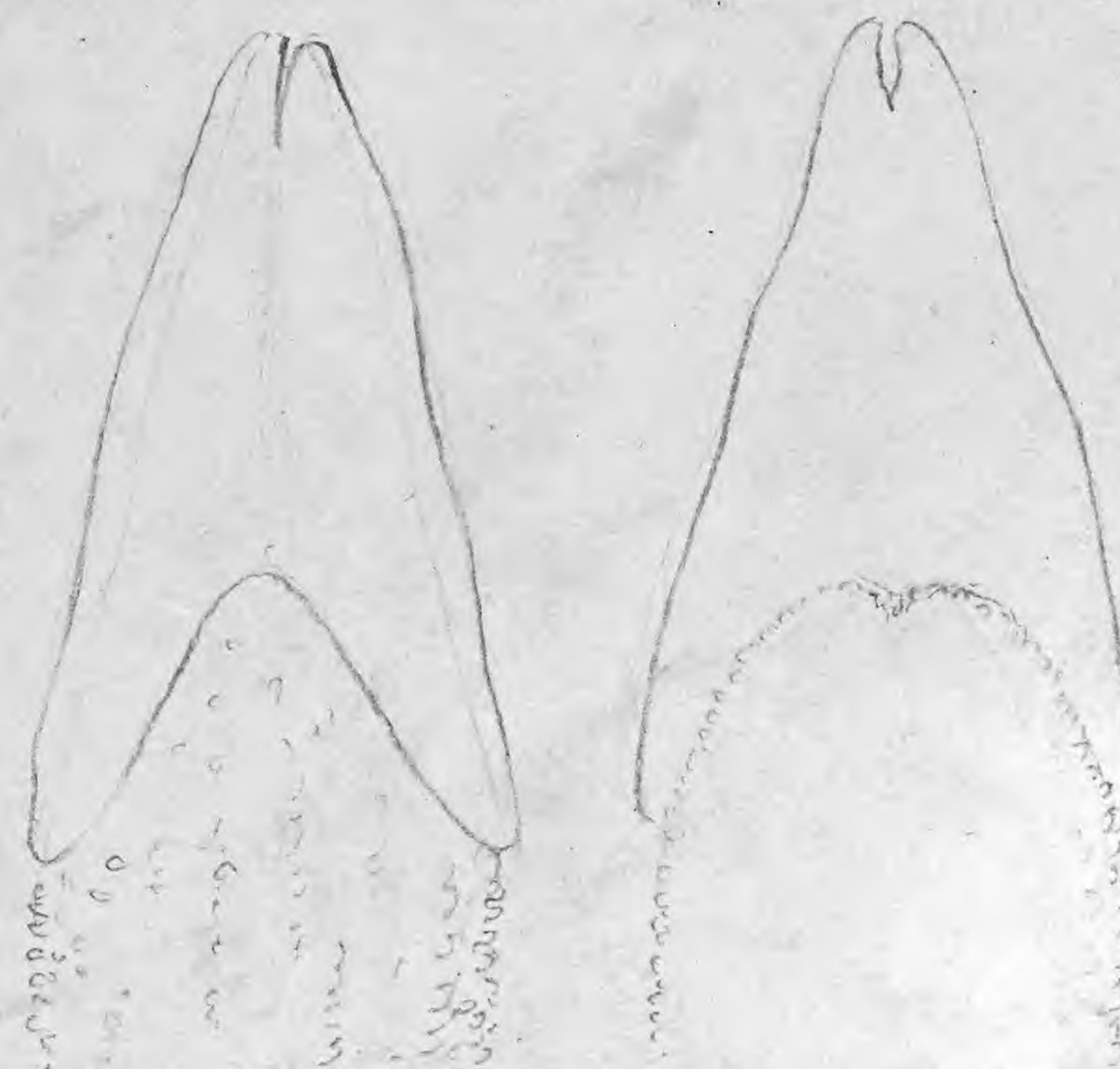
ovules x30

each 0.30" thick



lower part
of filament
x10

did not bear fruit



top view of stigma

x10



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HOEELKE BROS.,

[Successors to SAMUEL D. HENDEL,]

Apothecaries & Chemists,

S. W. Corner of 6th and Market Streets,
ST. LOUIS, MO.

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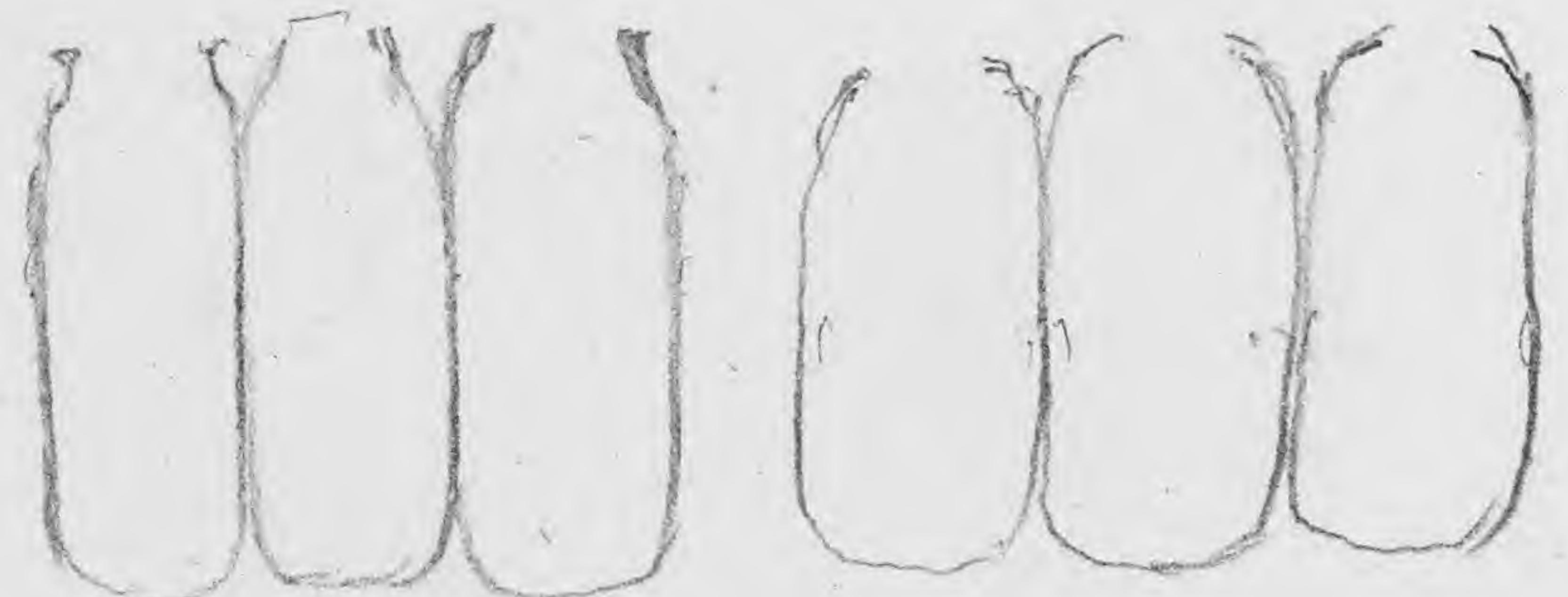
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X30

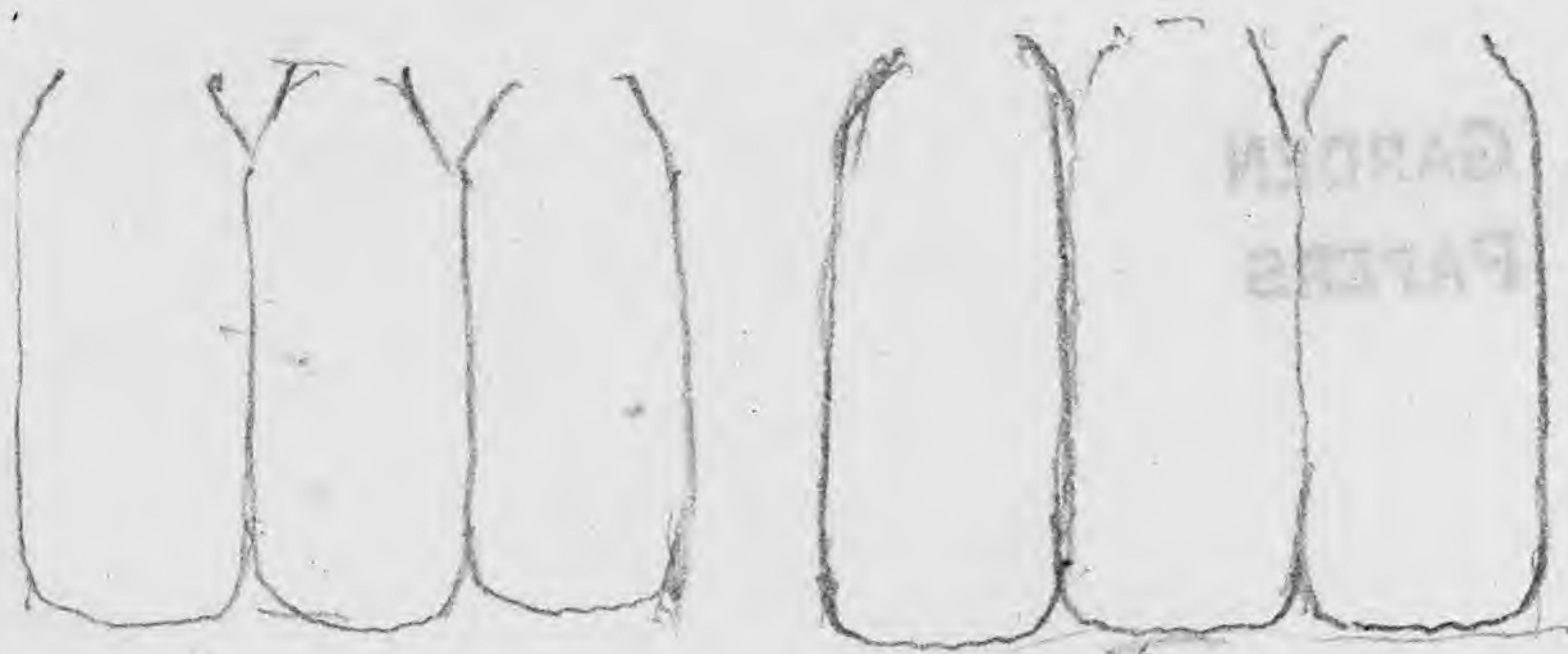
Yucca
at Dalton's

Jan 15 1872

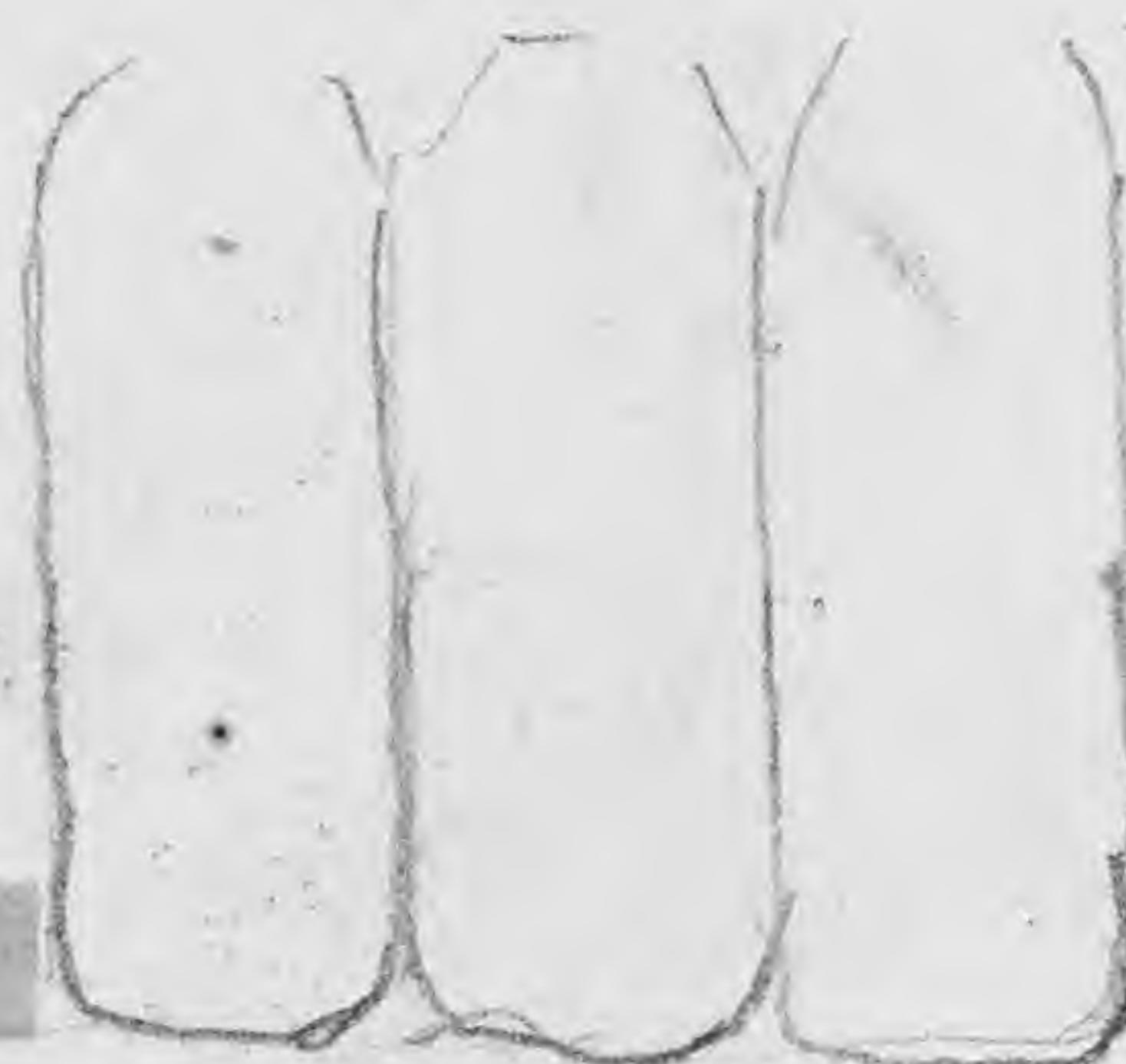
8 a.m.



ovules from a bud which will open
this evening



ovules from a flower which
opened last evening



$$\frac{8-9}{30} = 2.7-3.0 \text{ mm}$$

ovules of a withered flower
which was open 2 or 3 evenings
ago
style withered
evidently not fertilized



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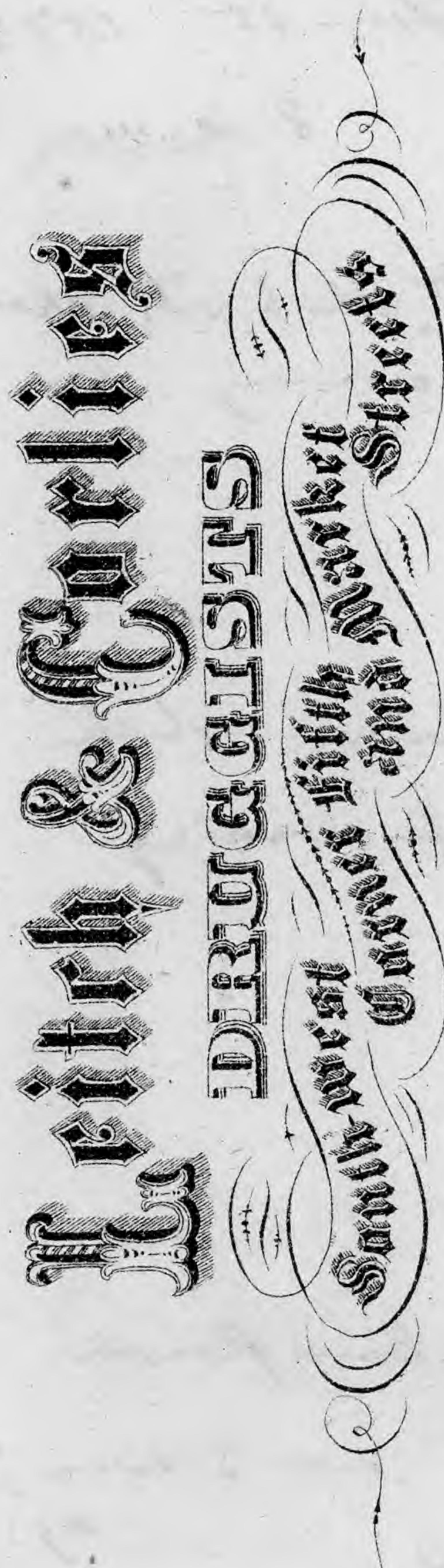
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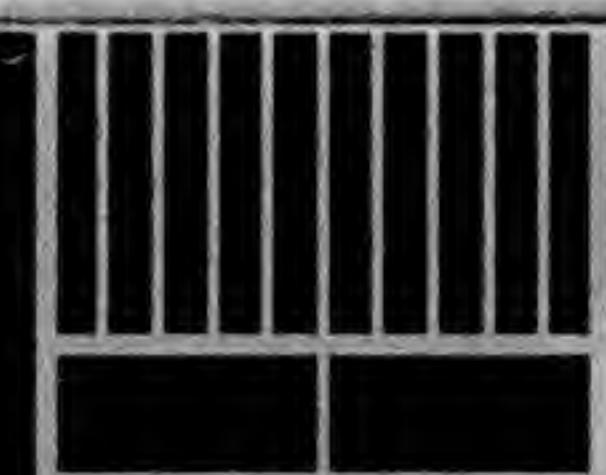


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Yucca

June 11 1872

glabrous scape and panicle -

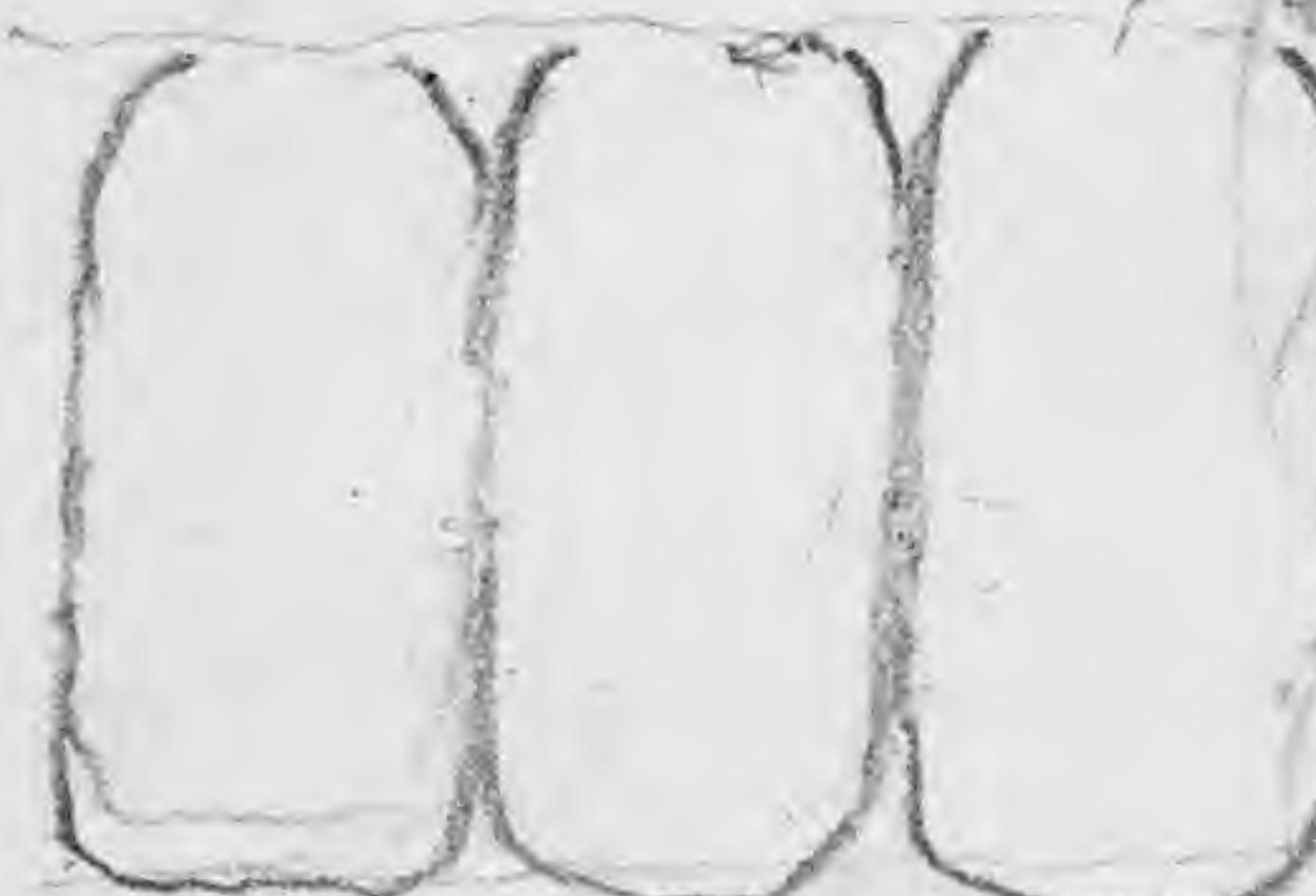
Mrs Dalton's, Natural Bridge

drawn 9 a.m. - after opening evening flower



x2

section



ovules x30

each 0.26 mm.
thick

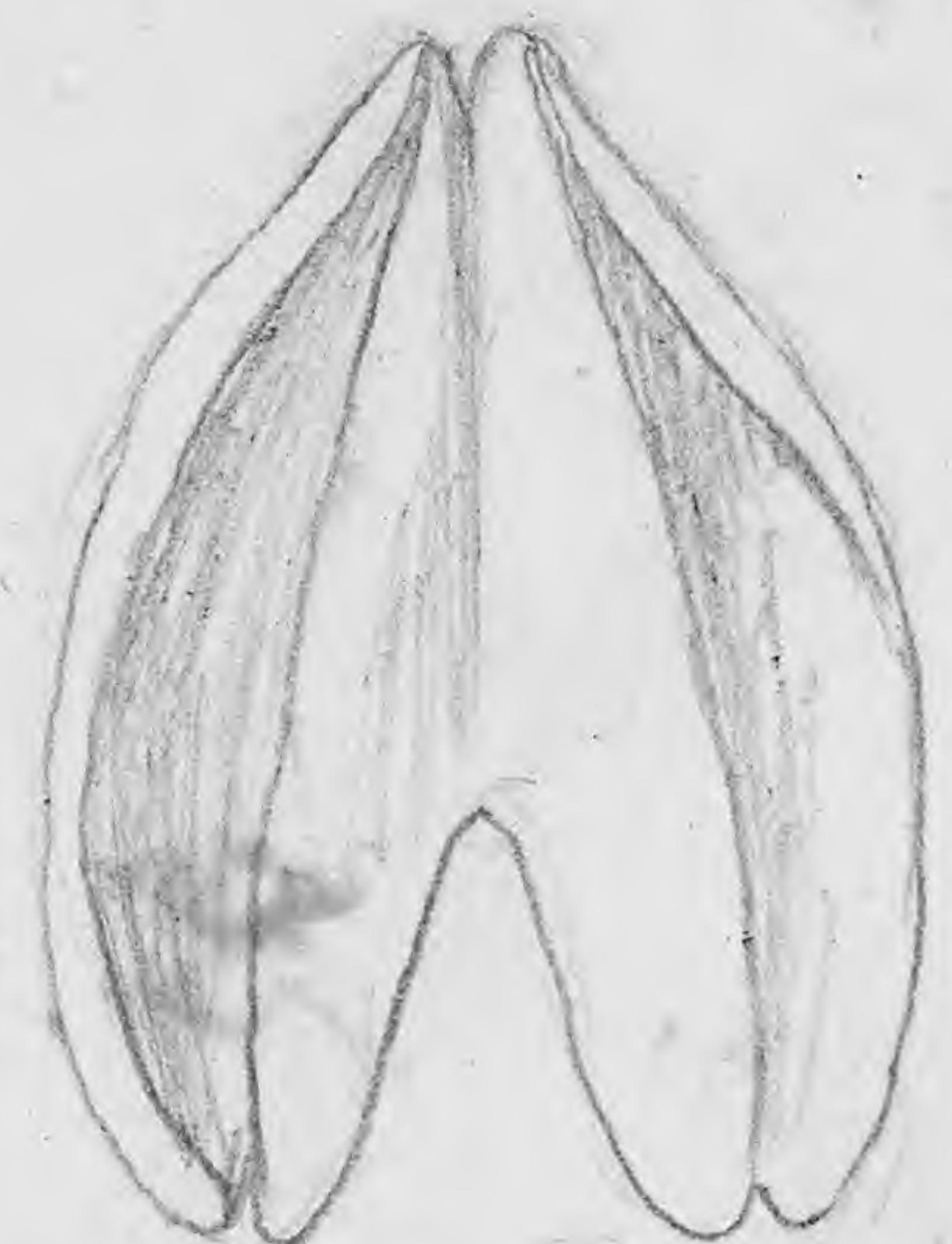


diameter
of pollen



effete anther

x10

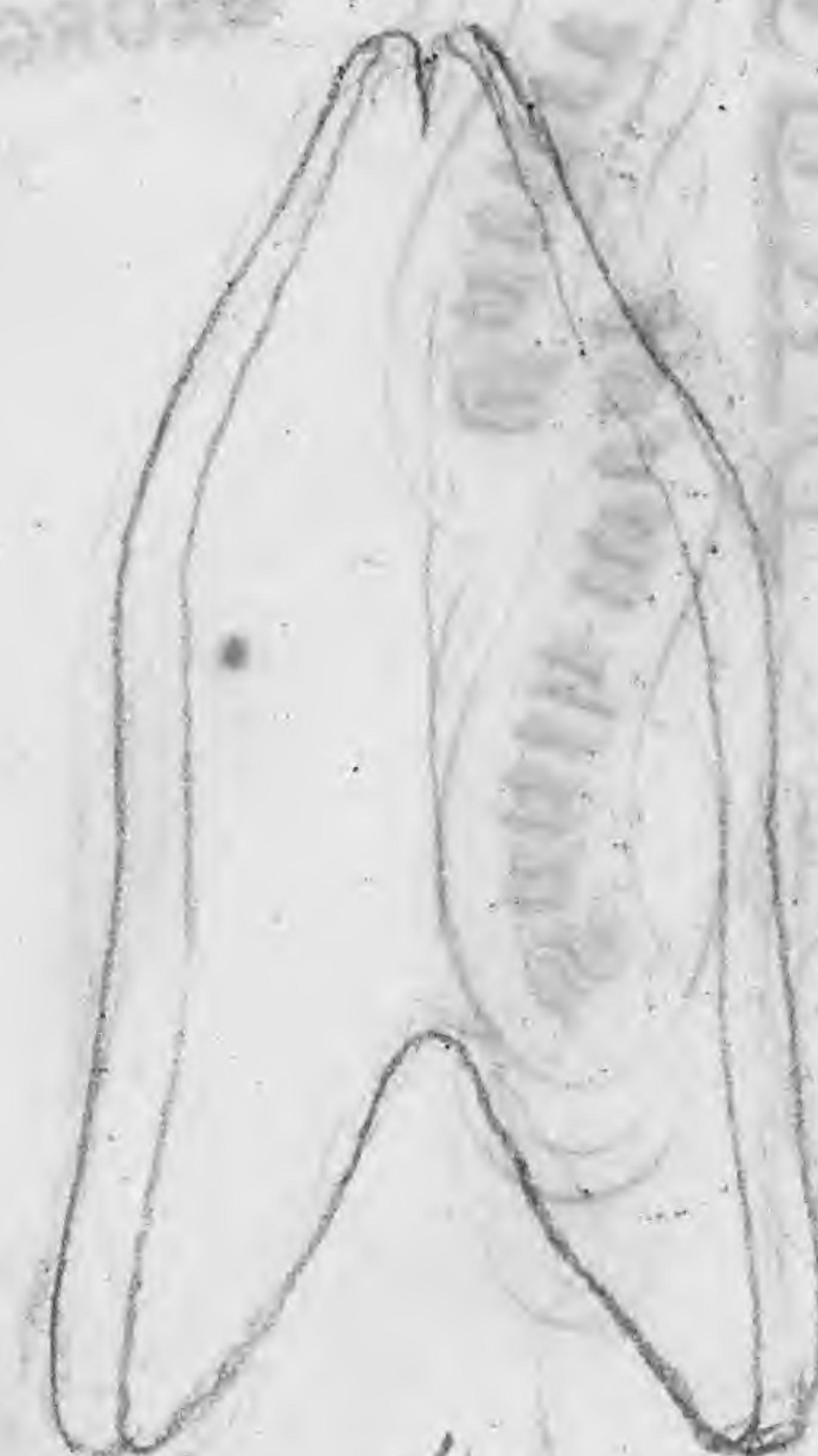


same soaked

x10



portion
of stig



anther of bud x10



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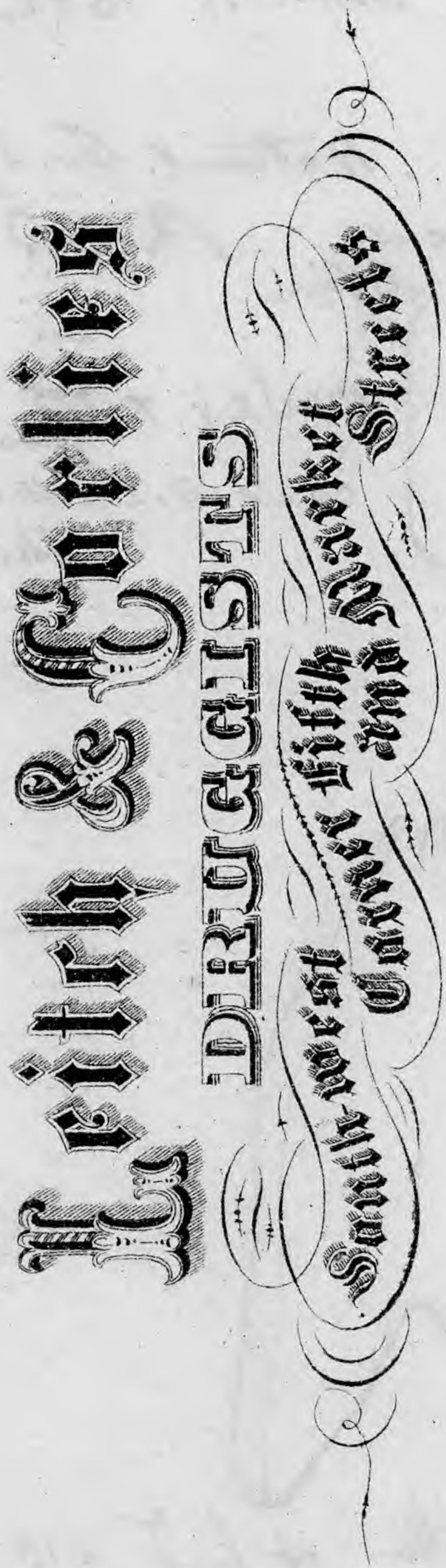
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66/37/06



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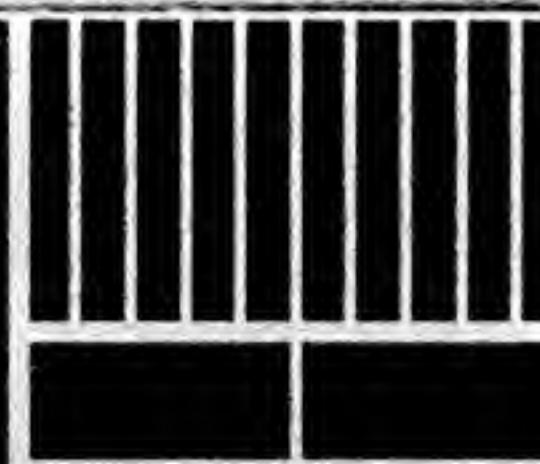
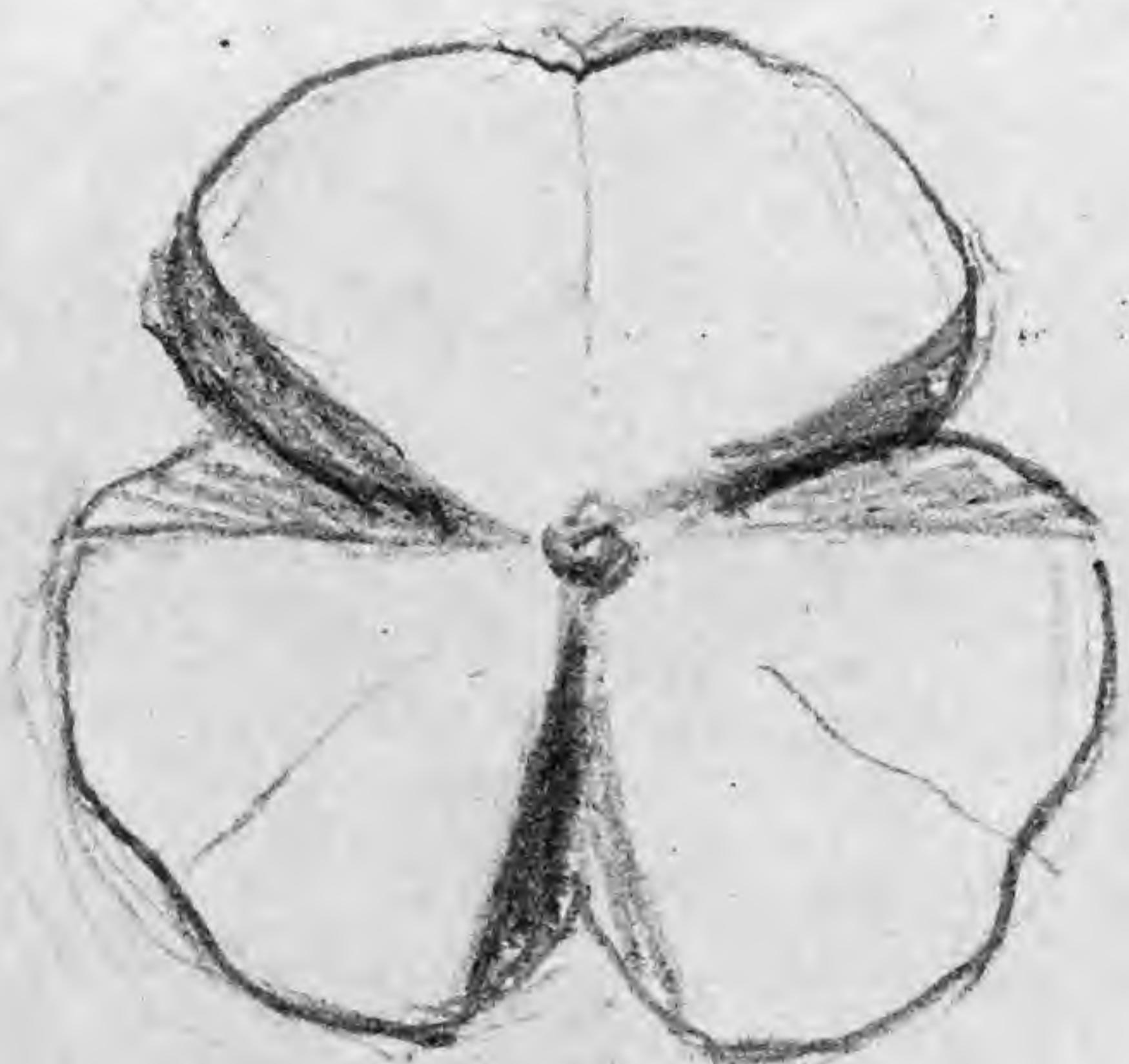
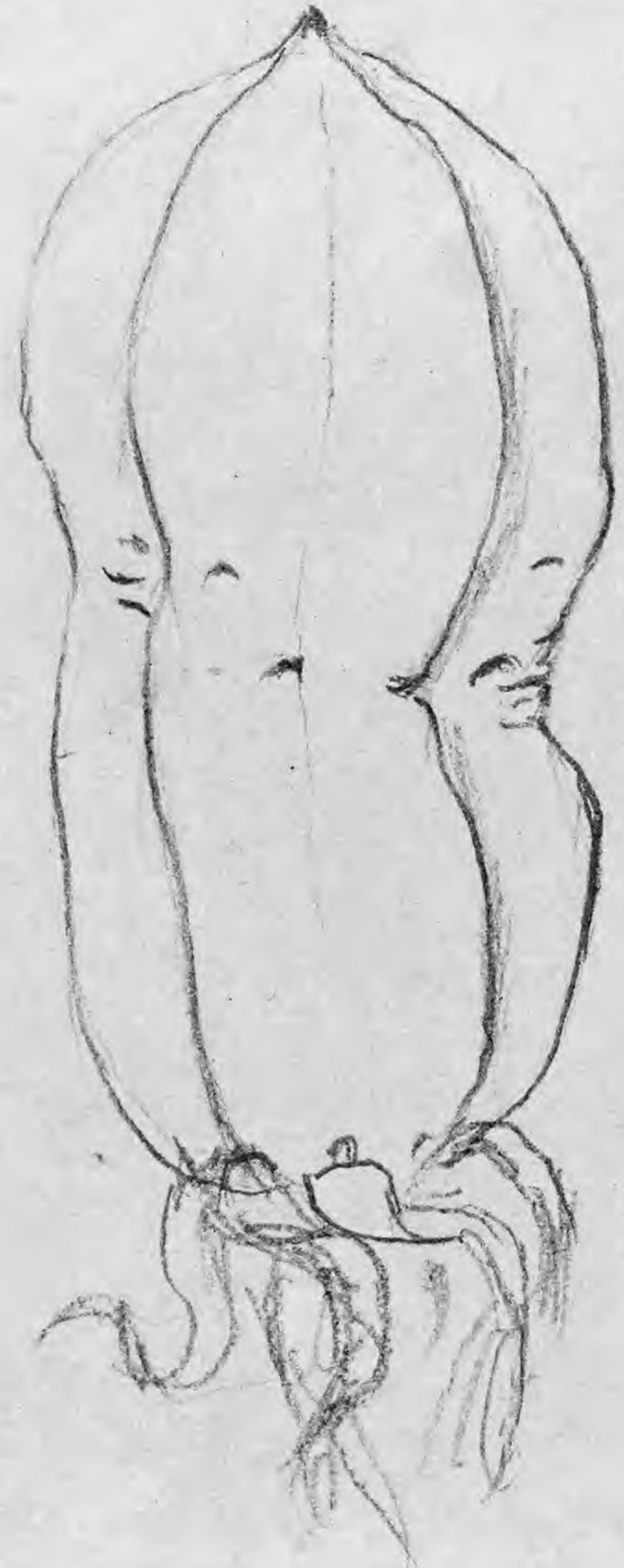
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g. floridana?

July 11 1873

stizomatis omnis, brevibus

capsula major profunde lobata
fusca,



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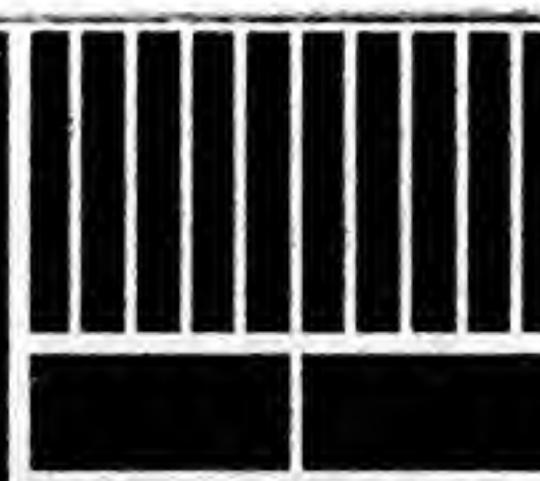
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ALEX. LEITCH,
APOTHECARY & CHEMIST,

Cor. 4th & Olive Sts. St. Louis.

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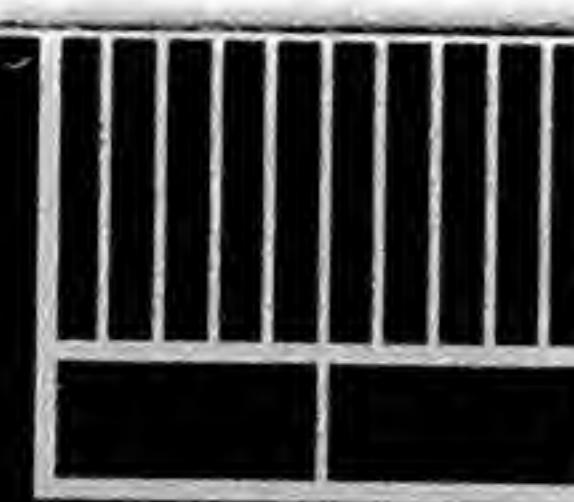


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Y. f. clementosa
From same plant as that figured
June 22nd 1871



June 20 1874
opposite the bay window, eastward
now - full blooming
9 o'clock p.m.
flower never fully expand
3 - 3 1/2 inches. Dicot, or
if fully open 4 1/2 inches.
inner lobes much wider and
a little longer than outer ones



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J. McKittrick & Co. 36 Main St.

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
Yucca plant, Baker Refug. Bot. V. 324

328

Mr. Dalton's garden, natural bridge road, number at
first flowers to dig, June 10th 1872, while the common
Y. filamentosa (L.) ^{glauca} is about a week back and.

Scape green, smooth, with quite a compact, much
branched panicle.

seems to be similar to the
form seen at St. Louis last
year, June 1st



dimensions of open flower
4 $\frac{3}{4}$ inches - 5 inches
ext petals 26 x 10 mm,
inner petals 30 x 15 mm

of all species seen by me

Feb 7th 1873 This corresponds best with

Y. filamentosa L. as figured by Baker, which is
a little more pubescent, and ^{has} a little smaller
flowers, with somewhat narrower segments
See Baker in *Refugian Botan. V. t. 324* (July 1872)



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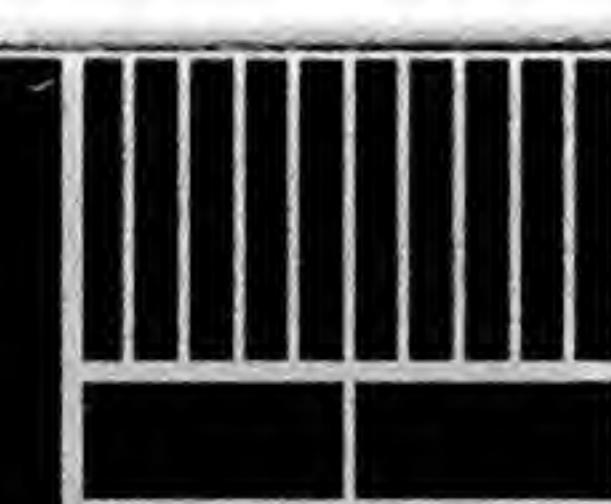
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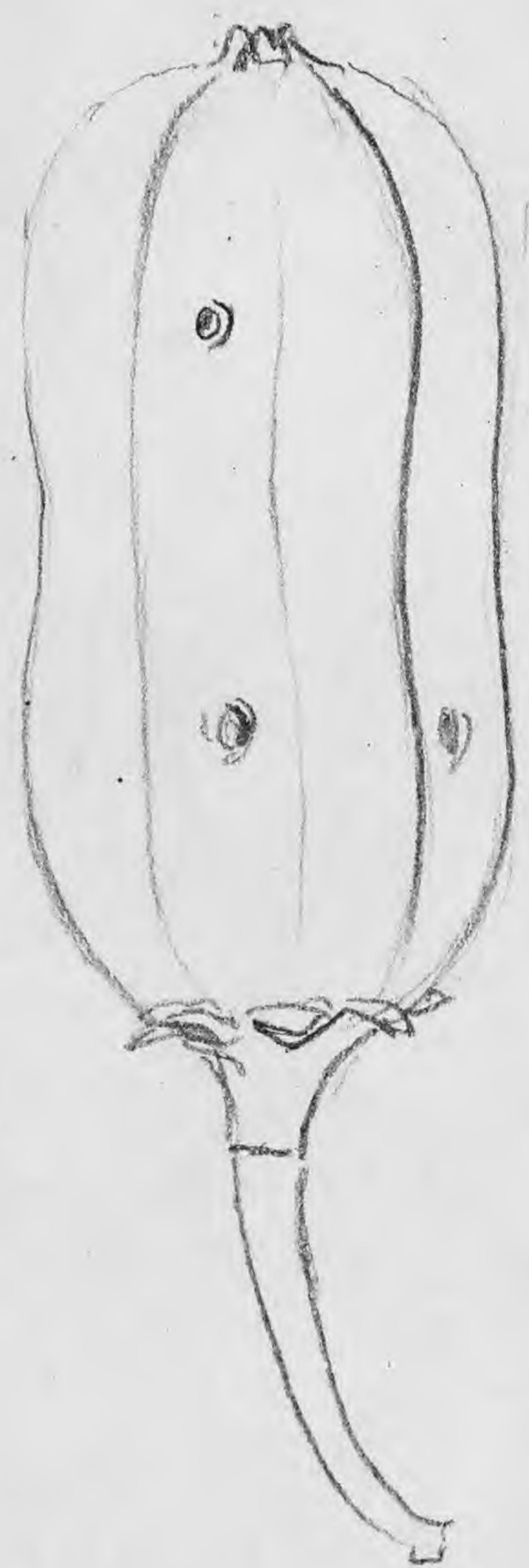


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you're encouraged
now.

Oct 28 18.

Kirkwood also Mr. Matthews, cult.



very incomplete
dry specimen



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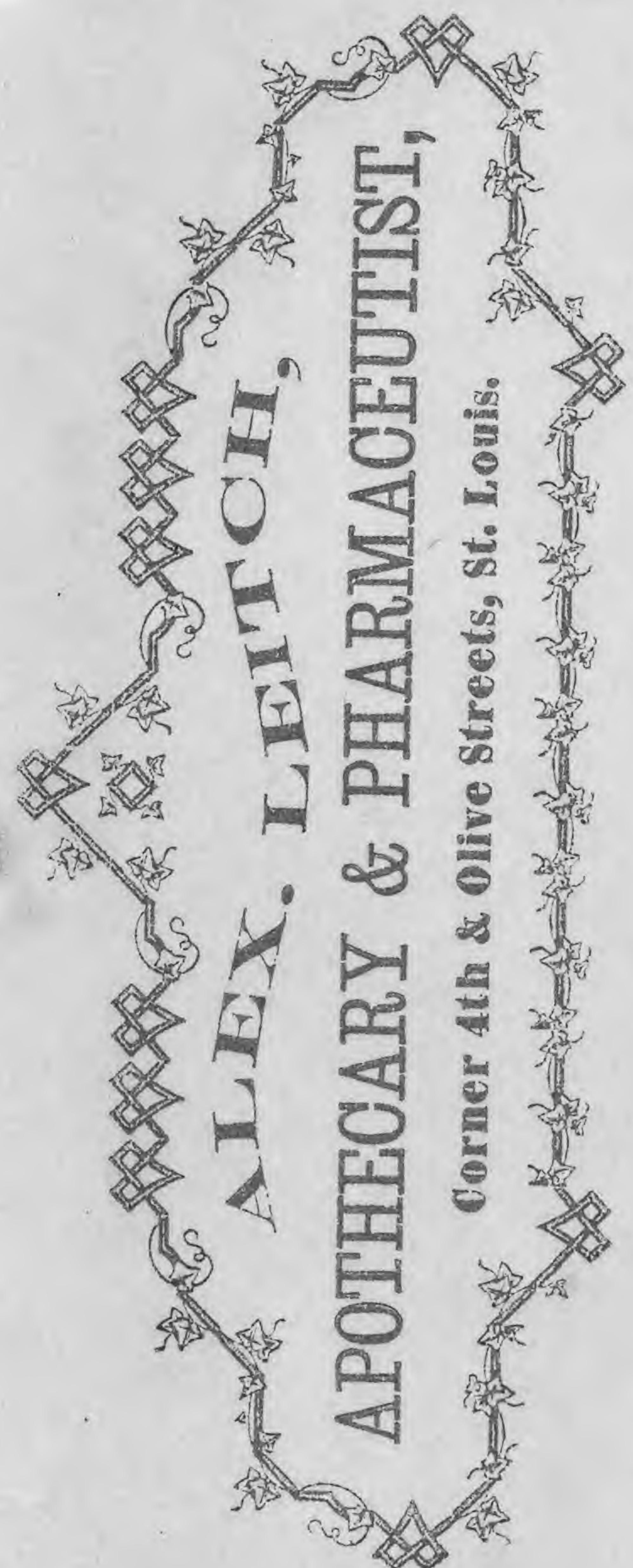
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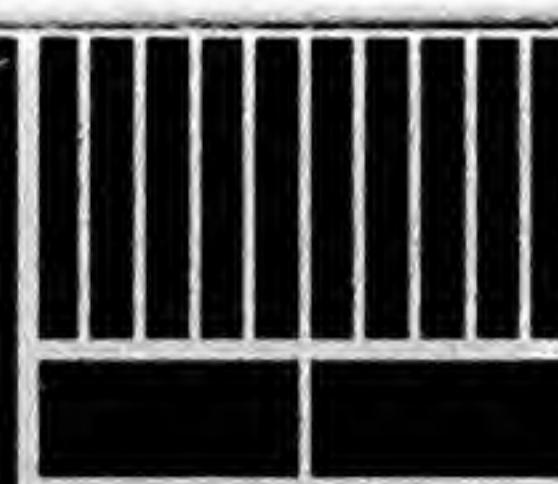


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